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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,574	09/22/2003	Thomas Johnston	52791-701USPT	9644

7590 10/18/2005

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EXAMINER

MARKOFF, ALEXANDER

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,574

Applicant(s)

JOHNSTON ET AL.

Examiner

Alexander Markoff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 11-14 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for silicon wafers, does not reasonably provide enablement for any non-specified silicon and quartz articles. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. Claims are directed to a non-specified silicon or quartz article from, which organic or organometallic materials have been removed. The specification recites only specific silicon wafer as an article. No guidance is provided regarding any other articles. Thereby an ordinary artisan would not be able to make the claimed invention.

2. Claims 11-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicants have amended the claims to recite quartz article. The original disclosure fails to support such amendment.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by clean quartz substrates or laboratory dishes, which were cleaned by any conventional washing process or by any semiconductor wafer cleaned by any conventional for industry method.

It is noted that the claims are directed to a non-specified silicon or quartz article. It is further noted that any silicon or quartz article, which does not have organic or organometallic material thereon meets the claimed limitations. The cleaned articles cleaned by different processes, which remove contaminants, are the same articles.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Roth-Folsch et al (US Patent No 6,409,842) and Kinoshita et al (US Patent NO 6,631,726).

Both cited documents teach that it was known to remove contaminants by action of UV of the claimed wavelength generated by the claimed sources in a vacuum chamber in the presence of the claimed gasses. See entire documents, especially column 1, line 66 – column 2, line 21 of Kinoshita et al and columns 2- 6 of Roth-Folsch et al.

Both documents are silent regarding the pressure range. Both documents teach that it was conventional to conduct the process in vacuum. It is believed that recitation

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of the vacuum together with recitation of specific reaction gasses encompasses the claimed range. Moreover, it would have been obvious to an ordinary artisan at the time the invention was made to find an optimum pressure in the methods disclosed by Kinoshita et al and Roth-Folsch et al by routine experimentation and to make the apparatuses disclosed by these documents operating at such optimum pressures in order to enhance the treatment.

Response to Arguments

8. Applicant's arguments filed 08/08/05 have been fully considered but they are not persuasive.

9. The applicants state that the term "silicon wafers" conventionally includes silicon and its derivatives, such as quartz. The applicants have not cited any authority to support such statement. The examiner without discussing the exact borders of the terms "silicon wafer" and "derivatives" and disagrees regarding quartz. Silicon is a semiconductor material. Quartz is not semiconductor material. Quartz wafers could not be considered as derivatives of silicon wafers.

The applicants argue that the amendment made obviated rejections of claims 11-14 made under 35 USC 112(1). This is not persuasive. See rejection above.

The applicants argue that the rejection of claims 11-14 should be removed. The applicants cited authorities, which state that the product-by-process claims are proper form of the claims. The examiner never argued that the form of the claims is not proper. However, since the silicon wafer (quartz laboratory dish) cleaned by any conventional method is the same wafer (dish) as cleaned by the method of the invention the claims

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are anticipated. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

With respect to the rejection made under 35 USC 103 the applicants argue that there is no motivation to combine the applied documents. The applicants also argue that there is no basis for combining references. The applicants further argue that references are not properly combinable if their intended function is destroyed. It is not clear how these arguments are related to the rejection because the references are applied not in combination. The applicants' attention is directed to the fact that the rejection made over any one of the applied documents.

The applicants argue that Konishita et al teach conducting the process in an open chamber. This is not persuasive because the cited document specifically states that it was conventional to irradiate the substrate in vacuum by the claimed radiation from the claimed discharged lamps in the presence of the claimed gases. See the cited part of the document (column 1, line 66 – column 2, line 21).

The applicants argue that Roth-Folsch et al do not teach placing the lamp and the substrate in the chamber. The applicants rely on the statement made in column 3, lines 4-6 of the document, which state that the substances being used in forming the radical molecules are placed in the area between the ultraviolet radiator and the

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substrate surface. The cited part, however, does not support the applicant's argument. The cited part requires gasses from which the radicals are formed be in between the UV source and the substrate, clearly showing the close proximity of the source and the substrate, similar to other disclosed embodiments.

The applicants argue that the prior art lamps are different from the lamps used by the applicants, and that the lamps of the prior art are not capable of working at reduced pressures. The applicants present no evidence to support the statement regarding the prior art lamps. The arguments are not persuasive because the prior art teaches the use of the same lamps as recited by the most specific claims – dielectric barrier discharge lamps.

It is noted that the claims do not recite any specifics of the claimed lamps to support the arguments made by the applicants. It is also noted that some of the claims do not require any specific placement of the radiation source. It is further noted that most of the claims require only means or device for emitting contained in the chamber, which does not exclude the lamps covered or separated from the interior of the chamber. It is further noted that the only claims, which require the lamps being in the chamber, recite the use of the same lamps, which are used by the prior art.

It appears that the applicant's arguments are more specific than the claims, not supported by evidence and contradict to the teaching of the prior art. Due to all of the above the arguments are not found persuasive. The rejection is maintained.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander Markoff
Primary Examiner
Art Unit 1746

AM

ALEXANDER MARKOFF
PRIMARY EXAMINER